

Example

Sketch the graph of $f(x) = x^4 - 4x^3$.

Note: $f'(x) = 4x^2(x - 3)$ and $f''(x) = 12x(x - 2)$.

Example

Sketch the graph of $f(x) = \frac{2x^2}{x^2 - 1}$.

Note: $f'(x) = \frac{-4x}{(x^2 - 1)^2}$ and $f''(x) = \frac{12x^2 + 4}{(x^2 - 1)^3}$.

Example

Sketch the graph of $y = xe^{-x}$.

Note: $y' = -e^{-x}(x - 1)$ and $y'' = e^{-x}(x - 2)$.